

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

Claims 1-85: Cancelled

86. (Currently Amended) ~~An distributed storage management apparatus~~ comprising:
a storage virtualization engine (SVE), wherein

said SVE comprises a plurality of multi-port controllers.

at least one of said multi-port controllers comprises a plurality of ports and an
interface controller.

said interface controller is associated with one of said ports.

said at least one of said multi-port controllers is configured to

determine a state of said interface controller, wherein said interface

controller is configured to receive a signal, and

enable said port if said signal is valid.

87. (Currently Amended) The apparatus of claim 86, wherein

~~said SVE comprises a plurality of multi-port controllers~~

said at least one of said multi-port controllers is configured to configure said one of said
ports of said at least one of said multi-port controllers.

88. (Previously presented) The apparatus of claim 87, wherein
each of said multi-port controllers is a dual-port Fibre Channel controller having a first
port and a second port.

89. (Currently Amended) The apparatus of claim 87, wherein
said at least one of said multi-port controllers is configured to communicatively couple
said SVE to another SVE.

90. (Previously presented) The apparatus of claim 89, wherein

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said at least one of said multi-port controllers is configured to be communicatively coupled to a multi-port controller of said another SVE.

91. (Currently Amended) The apparatus of claim 87, further comprising:

a storage subsystem, wherein

~~at least one~~ a multi-port controller of said multi-port controllers is coupled to said storage subsystem.

92. (Currently Amended) The apparatus of claim 87, further comprising:

a host computer, wherein

~~at least one~~ a multi-port controller of said multi-port controllers is coupled to said host computer.

93. (Previously presented) The apparatus of claim 87, further comprising:
a plurality of SVEs, wherein said SVE is one of said SVEs.

94. (Currently Amended) The apparatus of claim [[86]] 93, wherein
each of said multi-port controllers of each of said SVEs is a dual-port Fibre Channel controller having a first port and a second port, and
a second port of at least one multi-port controller of one of said SVEs is coupled to a second port of at least one multi-port controller of one other of said SVEs.

95. (Currently Amended) The apparatus of claim 93, wherein
~~at least one~~ a multi-port controller of said multi-port controllers of said SVE is communicatively coupled to a multi-port controller of one of said SVEs.

96. (Currently Amended) The apparatus of claim 93, further comprising:
a storage subsystem, wherein

~~at least one~~ a multi-port controller of said multi-port controllers of said SVE is coupled to said storage subsystem.

97. (Currently Amended) The apparatus of claim 96, further comprising:

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a switch, wherein said switch is configured to couple said storage subsystem to said at least one a multi-port controller of said multi-port controllers of said SVE.

98. (Currently Amended) The apparatus of claim 93, further comprising:
a host computer, wherein
at least one a multi-port controller of said multi-port controllers of said SVE is
coupled to said host computer.

99. (Currently Amended) The apparatus of claim 98, further comprising:
a switch, wherein said switch is configured to couple said host computer to said at least
one a multi-port controller of said multi-port controllers of said SVE.

100. (Previously presented) The apparatus of claim 93, wherein
each of said SVEs is communicatively coupled to at least one other of said SVEs.

101. (Previously presented) The apparatus of claim 100, wherein said each of
said SVEs is communicatively coupled to said at least one other of said SVEs by virtue of at
least one of said multi-port controllers of said each of said SVEs being communicatively coupled
to a multi-port controller of said at least one other of said SVEs.

102. (Previously presented) The apparatus of claim 100, further comprising:
a secondary network, wherein
at least one of said SVEs is communicatively coupled to said secondary network.

103. (Previously presented) The apparatus of claim 102, wherein
a plurality of said SVEs are communicatively coupled to said secondary network, and
said plurality of said SVEs communicate with one another using said secondary network.

104. (Previously presented) The apparatus of claim 100, wherein said SVEs are
coupled to form a storage area network (SAN).

105. (Previously presented) The apparatus of claim 104, wherein said multi-port
controllers are coupled to form said SAN.

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106. (Previously presented) The apparatus of claim 104, wherein a port of a first multi-port controller of a first one of said SVEs is coupled to a port of a second multi-port controller of a second of said SVEs, and said first and said second ones of said SVEs are communicatively coupled to one another by said first multi-port controller and said second multi-port controller.

107. (Previously presented) The apparatus of claim 104, further comprising: a host computer; and a storage subsystem, wherein said multi-port controllers are coupled to form a storage area network, and said host computer and said storage subsystem are communicatively coupled to one another by said storage area network.

108. (Previously presented) The apparatus of claim 107, wherein a host-side switch, wherein said host-side switch is configured to couple said host computer to said at least one of said SVEs, and a storage-side switch, wherein said storage-side switch is configured to couple said storage subsystem to said at least one of said SVEs.

109. (Previously presented) The apparatus of claim 104, wherein, for each of said SVEs, a host-side multi-port controller of said multi-port controllers of said each of said SVEs is dedicated to host-side connections, and a storage-side multi-port controller of said multi-port controllers of said each of said SVEs is dedicated to storage-side connections.

110. (Previously presented) The apparatus of claim 109, wherein each of said multi-port controllers is a dual port controller.

111. (Previously presented) The apparatus of claim 109, wherein a first storage-side multi-port controller is communicatively coupled to a second storage-side multi-port controller, wherein

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a first one of said SVEs comprises said first storage-side multi-port controller,
a second one of said SVEs comprises said second storage-side multi-port
controller, and
said first and said second storage-side multi-port controllers are ones of said
storage-side multi-port controllers.

112. (Previously presented) The apparatus of claim 111, wherein said first and
said second storage-side multi-port controllers are communicatively coupled to one another via
an in-band link.

113. (Previously presented) The apparatus of claim 109, wherein
a first host-side multi-port controller is communicatively coupled to a second host-side
multi-port controller, wherein
a first one of said SVEs comprises said first host-side multi-port controller,
a second one of said SVEs comprises said second host-side multi-port controller,
and
said first and said second host-side multi-port controllers are ones of said host-
side multi-port controllers.

114. (Previously presented) The apparatus of claim 113, wherein said first and
said second host-side multi-port controllers are communicatively coupled to one another via an
in-band link.

115. (Previously presented) The apparatus of claim 104, wherein
said SAN comprises a backbone,
said backbone is formed by a SCSI upper-layer protocol and a fibre channel lower-layer
protocol.

116. (Previously presented) The apparatus of claim 115, wherein each of said
multi-port controllers is a dual port controller.

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117. (Previously presented) The apparatus of claim 115, wherein a first one and a second one of said SVEs are communicatively coupled to one another via an in-band link.

118. (Previously presented) The apparatus of claim 117, wherein said in-band link is one of a plurality of in-band links, each of said SVEs is communicatively coupled to another of said SVEs by at least one of said links, and said SVEs and said links are configured to support communication of SAN management information.

119. (Previously presented) The apparatus of claim 117, wherein said first and said second ones of said SVEs are further communicatively coupled to a secondary network.

120. (Previously presented) The apparatus of claim 119, wherein said in-band link is one of a plurality of in-band links, each of said SVEs is communicatively coupled to another of said SVEs by at least one of said links, and said secondary network is independent of said in-band links.

121. (Previously presented) The apparatus of claim 120, wherein said SVEs are configured to communicate with one another via said secondary network concurrently with communicating with said one another via said in-band links.

122. (Previously presented) The apparatus of claim 121, further comprising: a host computer, communicatively coupled to said secondary network, wherein said SVEs are configured to communicate with said host computer via said secondary network.

123. (Previously presented) The apparatus of claim 121, wherein said SVEs are configured to communicate with one another via said secondary network, in an event of a failure of at least one of said in-band links.

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